

Claims

What is claimed is:

- [c1] A method for manufacturing a printed circuit bonded to a heat sink, comprising:
 - producing the printed circuit comprising at least one conductive layer circuit pattern laminated to at least one side of a dielectric layer;
 - first adhering a first side of a bond film to the printed circuit, wherein the first adhering conforms the printed circuit to the bond film to substantially remove air entrapment between the printed circuit and the bond film; and
 - second adhering a second side of the bond film to the heat sink.
- [c2] The method of claim 1, wherein the first adhering is performed at a lower temperature than the second adhering.
- [c3] The method of claim 1, wherein the first adhering forms a tack bond between the printed circuit and the bond film.
- [c4] The method of claim 1, wherein the heat sink is primed with a primer coating of adhesive before the second adhering.
- [c5] The method of claim 4, wherein the primer coating has a thickness in a range of about 0.1 to about 2 microns.
- [c6] The method of claim 1, wherein the first adhering is performed with a platen press.
- [c7] The method of claim 1, wherein the bond film is a thermoplastic resin film.
- [c8] The method of claim 1, wherein the bond film is a composite film comprising two adhesive layers and a dielectric layer.

- [c9] The method of claim 8, wherein the two adhesive layers on the bond film are made of different adhesive materials.
- [c10] The method of claim 1, wherein the bond film includes ceramic powder filler.
- [c11] The method of claim 1, wherein the printed circuit comprises a plurality of individual circuits.
- [c12] The method of claim 11, further comprising depanelizing the plurality of individual circuits before the second adhering.
- [c13] A method for manufacturing a printed circuit bonded to a heat sink, comprising:
producing the printed circuit comprising at least one conductive layer
circuit pattern laminated to at least one side of a dielectric layer;
stacking a plurality of circuit pre-assemblies, wherein each of the plurality
of circuit pre-assemblies comprising a bond film, the printed circuit,
conformance materials, and at least one release sheet;
first adhering the plurality of circuit pre-assemblies, wherein the first
adhering adheres the bond film to the printed circuit in each of the
plurality of circuit pre-assemblies to produce a plurality of printed
circuit-bond film assemblies; and
second adhering a heat sink to each of the printed circuit-bond film
assemblies.
- [c14] The method of claim 13, wherein the first adhering uses a platen press.
- [c15] The method of claim 13, wherein the first adhering is performed at a lower temperature than the second adhering to the heat sink.
- [c16] The method of claim 13, wherein the first adhering produces a tack bond between the printed circuit and the bond film.

- [c17] The method of claim 13, wherein the heat sink is primed with a primer coating of adhesive before the second adhering.
- [c18] The method of claim 17, wherein the primer coating has a thickness in a range of about 0.1 to about 2 microns.
- [c19] The method of claim 13, wherein the first adhering uses at least one plate to press the plurality of elements.
- [c20] The method of claim 13, wherein the bond film is a thermoplastic resin film.
- [c21] The method of claim 13, wherein the bond film is a composite film comprising two adhesive layers and a dielectric layer.
- [c22] The method of claim 21, wherein the two adhesive layers on the bond film are made of different adhesive materials.
- [c23] The method of claim 12, wherein the bond film includes ceramic powder filler.
- [c24] An apparatus, comprising:
 - a printed circuit comprising at least one conductive layer circuit pattern laminated to at least one side of a dielectric layer;
 - a heat sink; and
 - a bond film, wherein the bond film laminates the heat sink to the printed circuit, and wherein the bond film is tack-bonded to the printed circuit prior to laminating to the heat sink.